

REMARKS

Reconsideration of the present application and entry of the following amendment are respectfully requested. Claims 1 to 17 are currently pending, claims 1, 6, 8, 11 and 15 have been amended, and claims 2, 3, 7 and 12 to 14 have been canceled.

The Office Action mailed January 25, 2002 addressed claims 1 to 17. The Specification was objected to under 37 C.F. R. § 1.71, and claims 1 to 17 were rejected.

The specification of the present application was objected to under 37 CFR 1.71 because the disclosure was not identical to that of U.S. Application Serial No. 09/776,278, the parent of the present continuation application. While some changes were made to the specification of the present application for the purpose of further clarification of the claimed invention (i.e. the title was changed, some of the headings were slightly altered, several new paragraphs were added to the "Summary of the Invention" section of the application, etc.) these changes are believed to be supported by the specification of the parent application. However, in order to overcome to Examiner's procedural objection, and/or to Examiner's requirement of identical disclosures, the present application has now been further amended. Specifically, the present application has been amended so that it is once again identical, in a literal sense, to that of the parent application, with the exception of the cross-section paragraph. The cross-section paragraph has been amended to update the priority claim. In view of these amendments to the specification, it is respectfully submitted that the Examiner's 37 CFR 1.71 objection has been overcome.

Claims 1 to 17 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner stated that the hardness for the outer cover layer is not supported by the original disclosure.

Although Applicant respectfully disagrees, in an effort to hasten prosecution, claims 1, 6, 8, 11 and 15 have been amended, and claims 2, 3, 7 and 12 to 14 have

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been canceled. Applicant respectfully submits that this overcomes the rejection of claims 1 to 17 under 35 U.S.C. § 112, first paragraph. Applicant therefore respectfully requests that the rejection under 35 U.S.C. § 112, first paragraph be reconsidered and withdrawn.

A marked-up version of the changes requested in this Amendment is attached hereto. If the Examiner has any additional concerns regarding this application, the Examiner is invited to contact applicant's attorney at the telephone number listed below.

CONCLUSION

Applicant respectfully requests reconsideration and allowance of each of the presently rejected claims. Applicant respectfully requests allowance of claims 1, 4 to 6, 8 to 11, and 15 to 17, the claims currently pending.

Respectfully submitted,

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413-322-2937

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Date

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Attachment

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**IN THE TITLE:**

Please amend (i.e. additions are underlined and deletions are bracketed) the title on **page 1** as follows:

**IMPROVED MULTI-LAYER GOLF BALL [HAVING MULTI-LAYER COVER WITH
UNIQUE OUTER COVER CHARACTERISTICS]**

IN THE SPECIFICATION:

Please amend the heading on **page 1 (above line 1)** as follows:

[Cross References to Related Applications] Field of the Invention

Please amend the paragraph on **page 1, lines 1-7** as follows:

This [The present] application is a continuation application of U.S. Application Serial No. 09/776,278 filed February 2, 2001, which is a continuation application of U.S. Application Serial No. 09/470,196 filed on December 21, 1999, now U.S. Patent No. 6,210,293, which is a continuation application of U.S. Application Serial No. 08/870,585 filed June 6, 1997, which is a continuation of U.S. Application Serial No. 08/556,237 filed November 9, 1995, now abandoned, which is a continuation-in-part of U.S. Application Serial No. 08/070,510 filed on June 1, 1993, now abandoned.

Please amend the heading on **page 1, line 8** as follows:

[Field of the Invention]

Please amend the paragraph on **page 2, lines 11-20** as follows:

Ionomeric resins are polymers containing interchain ionic bonding. As a result of their toughness, durability and flight characteristics, various ionomeric resins sold by E. I. DuPont de Nemours & Company under the trademark Surlyn® and more recently, by the Exxon Corporation (see U. S. Patent No. 4,911,451) under the trademarks - "Escor®" and the trade name "Iotek®", have become the materials of choice for the construction of golf ball covers over the traditional "balata"

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(transpolyisoprene, natural or synthetic) rubbers. As stated, the softer balata covers, although exhibiting enhanced playability properties, lack the durability (cut and abrasion resistance, fatigue endurance, etc.) properties required for repetitive play.

Please amend the paragraph on **page 3, lines 21-26** as follows:

In addition, multi-layered covers containing one or more ionomer resins have also been formulated in an attempt to produce a golf ball having the overall distance, playability and durability characteristics desired. For example, this was addressed by Spalding & Evenflo Companies [Sports Worldwide], Inc., the assignee of the present invention, in U. S. Patent No. 4,431,193 where a multi-layered, regular sized, golf ball is disclosed.

Please amend the paragraphs on **page 4, line 31 to page 5, line 23** as follows:

The present invention is directed to improved multi-layer golf ball cover compositions and the resulting multi-layer golf balls produced using the improved compositions. The novel multi-layer golf ball covers of the present invention include a first or inner layer or ply of a high acid (greater than 16 weight percent acid) ionomer blend or, more preferably, a low acid (16 weight percent acid or less) ionomer blend and second or outer layer or ply comprised of a comparatively softer, low modulus ionomer, ionomer blend or other non-ionomeric thermoplastic or thermosetting elastomer such as polyurethane or polyester elastomer. The multi-layer golf balls of the invention can be of standard or enlarged size. Preferably, the inner layer or ply includes a blend of low acid ionomers and has a Shore D hardness of 60 or greater and the outer cover layer comprised of polyurethane and has a Shore D hardness of about 45 (i.e., Shore C hardness of about 65). [The present invention provides, in a first aspect, a golf ball comprising a core, an inner cover layer having particular characteristics, and an outer cover layer, also with certain features. The inner cover layer has a Shore D hardness of at least 60 and comprises a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. The outer cover layer has a Shore D hardness of from about 55 to about 59, a thickness of from

about 0.01 to about 0.07 inches, and comprises a polyurethane material.

In another aspect, the present invention provides a golf ball comprising a core, an inner cover layer, and an outer cover layer. The inner cover layer has a Shore D hardness of at least 60 and comprises a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. The outer cover layer has a Shore D hardness of from about 60 to about 68, a thickness of from about 0.01 to about 0.07 inches, and comprises a polyurethane material.

In yet another aspect, the present invention provides a golf comprising a core, an inner cover layer disposed on the core, and an outer cover layer disposed on the inner cover layer. The inner cover layer has a Shore D hardness of from about 60 or more, and comprises an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid having a modulus of from about 15,000 to about 70,000 psi. The outer cover layer has a Shore D hardness of from about 55 to about 68, a thickness of from about 0.01 to about 0.07 inches, and comprises a polyurethane material.]

Please amend the paragraph on **page 6, lines 9-14** as follows:

The combination of a low acid ionomer blend inner cover layer with a soft, relatively low modulus ionomer, polyurethane based elastomer outer cover layer provides for good overall coefficient of restitution (i.e., enhanced [excellent] resilience) while at the same time demonstrating improved compression and spin. The outer cover layer generally contributes to a more desirable feel and [high] spin, particularly at lower swing speeds with highly lofted clubs such as half wedge shots.

Please amend the title on **page 8, line 12** as follows:

Detailed Description of the Invention [Preferred Embodiments]

Please amend the paragraphs on **page 8, line 25 to page 9, line 10** as follows:

The low acid ionomers which may be suitable for use in formulating the inner layer compositions of the subject invention are ionic copolymers which are the

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metal, i.e., sodium, zinc, magnesium, etc., salts of the reaction product of an olefin having from about 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from about 3 to 8 carbon atoms. Preferably, the ionomeric resins are copolymers of ethylene and either acrylic or methacrylic acid. In some circumstances, an additional comonomer such as an acrylate ester (i.e., iso- or n-butylacrylate, etc.) can also be included to produce a softer terpolymer. The carboxylic acid groups of the copolymer are partially neutralized (i.e., approximately 10-75%, preferably 30-70%) by the metal ions. Each of the low acid ionomer resins which may be included in the inner layer cover [layer] compositions of the invention contains 16% by weight or less of a carboxylic acid.

The inner layer compositions include the low acid ionomers such as those developed and sold by E. I. DuPont de Nemours & Company under the trademark Surlyn® and by Exxon Corporation under the trademarks Escor® or tradename Iotek®, or blends thereof.

Please amend the paragraph on **page 10, lines 17-25** as follows:

Preferably, the outer layer includes a blend of hard and soft (low acid) ionomer resins such as those described in U. S. Patent Nos. 4,884,814 and 5,120,791, both incorporated herein by reference. Specifically, a desirable material for use in molding the outer [cover] layer comprises a blend of a high modulus (hard), low acid, ionomer with a low modulus (soft) low acid, ionomer to form a base ionomer mixture. A high modulus ionomer herein is one which measures from about 15,000 to about 70,000 psi as measured in accordance with ASTM method D-790. The hardness may be defined as at least 50 on the Shore D scale as measured in accordance with ASTM method D-2240.

Please amend the paragraph on **page 10, line 29 to page 11, line 2** as follows:

The hard ionomer resins utilized to produce the outer cover layer composition hard/soft blends include ionic copolymers which are the sodium, zinc, magnesium or lithium salts of the reaction product of an olefin having from 2 to 8

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carbon atoms and an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms. The carboxylic acid groups of the copolymer may be totally or partially (i.e. approximately 15-75 percent) neutralized.

Please amend the paragraphs on **page 11, lines 8-29** as follows:

As discussed earlier herein, the hard ionomeric resins introduced under the designation Escor[®] and sold under the designation Iotek[®] are somewhat similar to the hard ionomeric resins sold under the Surlyn[®] trademark. However, since the Iotek[®] ionomeric resins are sodium or zinc salts of poly(ethylene-acrylic acid) and the Surlyn[®] resins are zinc or sodium salts of poly(ethylene-methacrylic acid) some distinct differences in properties exist. As more specifically indicated in the data set forth below, the hard Iotek[®] resins (i.e., the acrylic acid based hard ionomer resins) are the more preferred hard resins for use in formulating the outer [cover] layer blends for use in the present invention. In addition, various blends of Iotek[®] and Surlyn[®] hard ionomeric resins, as well as other available ionomeric resins, may be utilized in the present invention in a similar manner.

Examples of commercially available hard ionomeric resins which may be used in the present invention in formulating the inner and outer cover blends include the hard sodium ionic copolymer sold under the trademark Surlyn[®] 8940 and the hard zinc ionic copolymer sold under the trademark Surlyn[®] 9910. Surlyn[®] 8940 is a copolymer of ethylene with methacrylic acid and about 15 weight percent acid which is about 29 percent neutralized with sodium ions. This resin has an average melt flow index of about 2.8 [gm/10 min]. Surlyn[®] 9910 is a copolymer of ethylene and methacrylic acid with about 15 weight percent acid which is about 58 percent neutralized with zinc ions. The average melt flow index of Surlyn[®] 9910 is about 0.7 [gm/10 min]. The typical properties of Surlyn[®] 9910 and 8940 are set forth below in Table 1:

Please amend Table 1 on **page 12, lines 1-22** as follows:

TABLE 1
Typical Properties of Commercially Available Hard
Surlyn[®] Resins Suitable for Use in the Inner and Outer Layer

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Blends [Cover Layers] of the Present Invention

	<u>ASTM D</u>	<u>8940</u>	<u>9910</u>	<u>8920</u>	<u>8528</u>	<u>9970</u>	<u>9730</u>
Cation Type ,		Sodium	Zinc	Sodium	Sodium	Zinc	Zinc
Melt flow index, gms/10 min.	D-1238	2.8	0.7	0.9	1.3	14.0	1.6
Specific Gravity, g/cm ³	D-792	0.95	0.97	0.95	0.94	0.95	0.95
Hardness, Shore D	D-2240	66	64	66	60	62	63
Tensile Strength, (kpsi), MPa	D-638	(4.8) 33.1	(3.6) 24.8	(5.4) 37.2	(4.2) 29.0	(3.2) 22.0	(4.1) 28.0
Elongation, %	D-638	470	290	350	450	460	460
Flexural Modulus, (kpsi) MPa	D-790	(51) 350	(48) 330	(55) 380	(32) 220	(28) 190	(30) 210
Tensile Impact (23°C) KJ/m ² (ft.-lbs./in ²)	D-1822S	1020 (485)	1020 (485)	865 (410)	1160 (550)	760 (360)	1240 (590)
Vicat Softening Temperature, °C	D-1525	63	62	58	73	61	73

Please amend Table 2 on page 13, line 1 to page 14, line 17 as follows:

TABLE 2
Typical Properties of Iotek[®] Ionomers

<u>Resin Properties</u>	<u>ASTM Method</u>	<u>Units</u>	<u>4000</u>	<u>4010</u>	<u>8000</u>	<u>8020</u>	<u>8030</u>
Cation type			zinc	zinc	sodium	sodium	sodium
Melt index	D-1238	g/10 min. 2.5	1.5	0.8	1.6	2.8	
Density	D-1505	kg/m ³	963	963	954	960	960
Melting Point	D-3417	°C	90	90	90	87.5	87.5
Crystallization Point	D-3417	°C	62	64	56	53	55
Vicat Softening Point	D-1525	°C	62	63	61	64	67
% Weight Acrylic Acid			16		11		
% of Acid Groups cation neutralized			30		40		
Plaque Properties (3 mm thick, compression molded)	<u>ASTM Method</u>	<u>Units</u>	<u>4000</u>	<u>4010</u>	<u>8000</u>	<u>8020</u>	<u>8030</u>

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Tensile at break	D-638	MPa	24	26	36	31.5	28
Yield point	D-638	MPa	none	none	21	21	23
Elongation at break	D-638	%	395	420	350	410	395
1% Secant modulus	D-638	MPa	160	160	300	350	390
Shore Hardness D	D-2240	--	55	55	61	58	59

Film Properties
(50 micron film 2.2:1
Blow-up ratio)

				<u>4000</u>	<u>4010</u>	<u>8000</u>	<u>8020</u>	<u>8030</u>
Tensile at Break	MD	D-882	MPa	41	39	42	52	47.4
	TD	D-882	MPa	37	38	38	38	40.5
Yield point	MD	D-882	MPa	15	17	17	23	21.6
	TD	D-882	MPa	14	15	15	21	20.7
Elongation at Break	MD	D-882	%	310	270	260	295	305
	TD	D-882	%	360	340	280	340	345
1% Secant modulus	MD	D-882	MPa	210	215	390	380	380
	TD	D-882	MPa	200	225	380	350	345
Dart Drop Impact		D-1709	g/micron	12.4	12.5	20.3		

Resin Properties Cation type	ASTM Method	Units	<u>7010</u> zinc	<u>7020</u> zinc	<u>7030</u> zinc
Melt Index	D-1238	g/10 min. 0.8		1.5	2.5
Density	D-1505	kg/m ³	960	960	960
Melting Point	D-3417	°C	90	90	90
<u>Crystallization Point</u>	<u>D-3417</u>	<u>°C</u>	--	--	--
Vicat Softening Point	D-1525	°C	60	63	62.5
<u>%Weight Acrylic Acid</u>			--	--	--
<u>% of Acid Groups Cation Neutralized</u>			--	--	--

Plaque Properties (3 mm thick, compression molded)	ASTM Method	Units	<u>7010</u>	<u>7020</u>	<u>7030</u>
Tensile at break	D-638	MPa	38	38	38
Yield Point	D-638	MPa	none	none	none
Elongation at break	D-638	%	500	420	395
<u>1% Secant modulus</u>	<u>D-638</u>	<u>MPa</u>	--	--	--
Shore Hardness D	D-2240	--	57	55	55

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Please amend the paragraphs on **page 14, line 18 to page 15, line 2** as follows:

Comparatively, soft ionomers are [may be] used in formulating the hard/soft blends of the inner and outer cover compositions. These ionomers include acrylic acid based soft ionomers. They are generally characterized as comprising sodium or zinc salts of a terpolymer of an olefin having from about 2 to 8 carbon atoms, acrylic acid, and an unsaturated monomer of the acrylate ester class having from 1 to 21 carbon atoms. The soft ionomer is preferably a zinc based ionomer made from an acrylic acid base polymer in an unsaturated monomer of the acrylate ester class. The soft (low modulus) ionomers have a hardness from about 20 to about 40 as measured on the Shore D scale and a flexural modulus from about 1,000 to about 10,000, as measured in accordance with ASTM method D-790.

Certain ethylene-acrylic acid based soft ionomer resins developed by the Exxon Corporation under the designation Iotek[®] 7520 (referred to experimentally by differences in neutralization and melt indexes as LDX 195, LDX 196, LDX 218 and LDX 219) may be combined with known hard ionomers such as those indicated above to produce the inner and outer cover layers. The combination produces higher C.O.R.s at equal or softer hardness, higher melt flow (which corresponds to improved, more efficient molding, i.e., fewer rejects) as well as significant cost savings versus the inner and outer layers of multi-layer balls produced by other known hard-soft ionomer blends as a result of the lower overall raw materials costs and improved yields.

Please amend the paragraph on **page 15, line 29 to page 16, line 12** as follows:

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In addition, test data collected by the inventor [Assignee] indicates that Iotek[®] 7520 resins have Shore D hardnesses of about 32 to 36 (per ASTM D-2240), melt flow indexes of 3 ± 0.5 g/10 min (at 190°C. per ASTM D-1288), and a flexural modulus of about 2500-3500 psi (per ASTM D-790). Furthermore, testing by an independent testing laboratory by pyrolysis mass spectrometry indicates that Iotek[®] 7520 resins are generally zinc salts of a terpolymer of ethylene, acrylic acid, and

methacrylate.

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Furthermore, the inventor [it] has [been] found that a newly developed grade of an acrylic acid based soft ionomer available from the Exxon Corporation under the designation Iotek® 7510, is also effective, when combined with the hard ionomers indicated above in producing golf ball covers exhibiting higher C.O.R. values at equal or softer hardness than those produced by known hard-soft ionomer blends. In this regard, Iotek® 7510 has the advantages (i.e. improved flow, higher C.O.R. values at equal hardness, increased clarity, etc.) produced by the Iotek® 7520 resin when compared to the methacrylic acid base soft ionomers known in the art (such as the Surlyn® 8625 and the Surlyn® 8629 combinations disclosed in U.S. Patent No. 4,884,814).

Please amend the paragraph on **page 17, lines 14-20** as follows:

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It has been determined that when hard/soft [high acid/low acid] ionomer blends are used for the outer cover layer[s], good results are achieved when the relative combination is in a range of about 90 to about 10 percent hard ionomer and about 10 to about 90 percent soft ionomer. The results are improved by adjusting the range to about 75 to 25 percent hard ionomer and 25 to 75 percent soft ionomer. Even better results are noted at relative ranges of about 60 to 90 percent hard ionomer resin and about 40 to 60 percent soft ionomer resin.

Please amend the paragraph on **page 18, lines 6-15** as follows:

Other soft, relatively low modulus non-ionomeric thermoplastic elastomers may also be utilized to produce the outer cover layer as long as the non-ionomeric thermoplastic elastomers produce the playability and durability characteristics desired without adversely effecting the enhanced spin characteristics produced by the low acid ionomer resin compositions. These include, but are not limited to thermoplastic polyurethanes such as: Texin® thermoplastic polyurethanes from Mobay Chemical Co. and the Pellethane® thermoplastic polyurethanes from Dow Chemical Co.; Ionomer/rubber blends such as those in Spalding U.S. Patents 4,986,545; 5,098,105 and 5,187,013; and, Hytrel® polyester elastomers from DuPont

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and Pebax® polyester[ether]amides from Elf Atochem S.A.

Please amend the paragraph on page 18, line 23 to page 19, line 9 as follows:

<u>Property</u>	<u>ASTM Test Method</u>	<u>Unit</u>	<u>Value</u>
Tear Strength Die C	D624	pli[psi]	180
Stress at			
100% Modulus	D412	psi	320
200% Modulus			460
300% Modulus			600
Ultimate Strength	D412	psi	900
Elongation at Break	D412	%	490
Taber Abrasion	D460, H-18	mg/1000 cycles	350

<u>Component¹ Properties</u>	<u>Part A (Isocyanate)</u>	<u>Part B (Resin)</u>
Viscosity @ 25°C, mPa·s	2500	2100
Density @ 25°C, g/cm	1.08	1.09
NCO, %	9.80	-----
Hydroxyl Number, Mg KOH/g	-----	88

¹Component A is a modified diphenylmethane diisocyanate (MDI) prepolymer and component B is a polyether polyol blend.

Please amend the paragraph on page 20, lines 12-25 as follows:

The various cover composition layers of the present invention may be produced according to conventional melt blending procedures. In the case of the outer cover layer, when a blend of hard and soft, low acid ionomer resins are utilized, the hard ionomer resins are blended with the soft ionomeric resins and with a masterbatch containing the desired additives in a Banbury mixer, two-roll mill, or extruder prior to molding. The blended composition is then formed into slabs and maintained in such a state until molding is desired. Alternatively, a simple dry blend of the pelletized or granulated resins and color masterbatch may be prepared and fed directly into the injection molding machine where homogenization occurs in the

mixing section of the barrel prior to injection into the mold. If necessary, further additives such as an inorganic filler, etc., may be added and uniformly mixed before initiation of the molding process. A similar process is utilized to formulate the low [high] acid ionomer resin compositions used to produce the inner cover layer.

Please amend the paragraph on **page 21, lines 18-22** as follows:

The resulting golf ball produced from the low acid ionomer resin inner layer and the relatively softer, low flexural modulus outer layer provide for an improved multi-layer golf ball which provides for desirable coefficient of restitution, compression, spin and durability properties while at the same time offering the feel [and spin] characteristics associated with soft balata and balata-like covers of the prior art.

Please amend the paragraph on **page 22, line 32 to page 23, line 2** as follows:

Coefficient of restitution (C.O.R.) was measured by firing the resulting golf ball in an air cannon at a velocity of 125 feet per second against a steel plate positioned 12 feet from the muzzle of the canon. The rebound velocity was then measured. The rebound velocity was divided by the forward velocity to give a coefficient of restitution. [Details for this procedure are set forth in U.S. Patent 5,984,806, herein incorporated by reference.]

Please amend the paragraph on **page 23, lines 28-30** as follows:

The purpose behind producing and testing the balls of Table 5 [11] was to provide a subsequent comparison in properties with the multi-layer golf balls of the present invention.

Please amend the paragraph on **page 25, lines 3-18** as follows:

With the above in mind, an outer cover layer composition was blended together in accordance with conventional blending techniques. The outer layer composition used for this portion of the example is a relatively soft cover composition such as those listed in U.S. Patent No. 5,120,791. An example of such a soft cover

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composition is a 45% soft/55% hard low acid ionomer blend designated by the inventor as "TE-90". The composition of TE-90 is set forth [below in Table 12] as follows:

Outer Cover Layer Composition TE-90

Iotek [®] 8000	22.7 weight %
Iotek [®] 7030	22.7 weight %
Iotek [®] 7520	45.0 weight %
White MB ¹	9.6 weight %

¹White MB consists of about 23.77 weight percent TiO₂; 0.22 weight percent Uvitex[®] OB, 0.03 weight percent Santonox[®] R, 0.05 weight percent Ultramarine Blue[™] and 75.85 weight percent Iotek[®] 7030.

Please amend the paragraph on **page 26, lines 13-24** as follows:

As it will be noted in finished balls 1-4, by creating a multi-layer cover utilizing the high acid ionomer resins in the inner cover layer and the hard/soft low acid ionomer resin in the outer cover layer, [generally] higher compression and increased spin rates are noted over the single layer covers of Table 5 [11]. In addition, both the C.O.R. and the Shore C hardness are reduced over the respective single layer covers of Table 5 [11]. This was once again particularly true with respect to the multi-layered balls containing the high acid ionomer resin in the inner layer (i.e. finished balls 1-4). In addition, with the exception of prior art ball 5 (i.e. the '193 patent), resistance to cutting remains good but is slightly decreased. As noted above, the prior art ball of the '193 patent suffers substantially in durability (as well as in resiliency) in comparison to the balls of the [present] invention.

Please amend Table 6B on **page 27, lines 10-23** as follows:

TABLE 6B
Finish[ed] Balls

<u>Ingredients:</u>	<u>6</u>	<u>7</u>
Inner Cover Layer Composition	A	D
Outer Cover Layer Composition	Estane [®] 4517	Surlyn [®] 9020

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Properties of
Molded Finished Balls:

Compression	67	61
C.O.R.	.774	.757
Shore C Hardness	74	89
Spin (R.P.M.)	10,061	8,846
Cut Resistance	3-4	1-2

Please amend the paragraph on **page 30, lines 1-9** as follows:

In this regard, Top Grade or TG is a low acid inner cover ionomer resin blend comprising of 70.6% Iotek[®] 8000, 19.9% Iotek[®] 7010 and 9.6% white masterbatch. "959/960" is a 50/50 wt/wt blend of Iotek[®] 959/960. In this regard, Escor[®] or Iotek[®] 959 is a sodium ion neutralized ethylene-acrylic neutralized ethylene-acrylic acid copolymer. According to Exxon, Ioteks[®] 959 and 960 contain from about 19.0 to about 21.0% by weight acrylic acid with approximately 30 to about 70 percent of the acid groups neutralized with sodium and zinc ions, respectively. The physical properties of these high acid acrylic acid based ionomers are as follows:

Please amend the paragraph on **page 30, line 29 to page 31, line 6** as follows:

The data clearly indicates that higher C.O.R. and hence increase[d] travel distance can be obtained by using multi-layered covered balls versus balls covered with single layers. However, some sacrifices in compression and spin are also noted. Further, as shown in comparing Example Nos. 12 vs. 13, Example Nos. 17 vs. 16, etc., use of lower acid level inner cover layers and relatively soft outer cover layers (i.e., 50 wt. % or more soft ionomer) produces softer compression and higher spin rates than the golf balls comprised of high acid inner cover layers. Consequently, use of blends of low acid ionomer resins to produce the inner layer of a multi-layer covered golf ball produces not only enhanced travel distance but also enhanced compression and spin properties.

Please amend the paragraph on **page 32, lines 22-30** as follows:

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The mantle core is 1.57" and fits snugly in the 1.57" cavity. The hose clamp is attached to the 1.57" cavity and a mantle core is placed in inside. Urethane is mixed and poured into one of the dimpled cavities and the two halves are placed together and clamped, forcing out excess material and forming half the cover. The hose clamp is used to keep the two mold halves aligned during curing. When the cover material is set up enough (about 5 minutes), the two halves are separated and the 1.57" mold is replaced with the other 1.68" mold and the process is repeated. Both halves of the cover are now cast and the entire assemble[y] is placed in an 125°F oven for 1 hour after which it can be opened and the ball removed.

Please amend Table 9 on **page 33, lines 1-23** as follows:

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TABLE 9

<u>Core Data</u>		23	23[24]	24[25]	25[26]	26[27]	27[28]	28[29]	29[30]
Size		1.47"	1.47"	1.47"	1.47"	1.47	1.47"	1.47"	1.47"
Weight		32.2	32	32.2	32	37.7	32.2	32	32.2
Comp		82	58	82	58	85	82	58	82
COR		768	772	768	772	794	768	772	768
<u>Mantle Data</u>									
Material		8030/7030	8030/7030	8030/7030	8030/7030	None	8030/7030	8030/7030	8030/7030
Weight		37.8	38.1	37.9	38.1		37.8	38.1	37.9
Size		1.57"	1.57"	1.57"	1.57"		1.57"	1.57"	1.57"
Comp		70	48	69	48		70	48	69
COR		781	785	786	788		781	785	786
<u>Bail Data</u>									
Cover Material		Baytec® RE832	Baytec® RE832	Baytec® RE832	Baytec® RE832	Z-Balata	Z-Balata	Z-Balata	Z-Balata
Weight		45.4	45.5	45.5	45.2	45.3	44.8	45	
Comp		75	64	73	60	80	66	50	65
COR		771	763	770	761	792	775	774	778
Shore C		65	65	65	65	84	84	84	84
Spin (rpm)		9560	8789	9285	8760	8796	8702	9072	8643
Cut (1-good, 4-poor)		2	2	2	1.5	2	2	2	2
Scuff (1-good, 4-poor)		1.5	1.5	1.5	1.5	2	3	3	3

Please amend the paragraph on **page 34, lines 12-17** as follows:

The invention has been described with reference to the preferred embodiment[s]. Obviously, modifications and alterations will occur to others upon reading and understanding the preceding detailed description. It is intended that the invention be construed as including all such modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.

IN THE CLAIMS:

Please delete claims 2 to 3, 7 and 12 to 14 without prejudice or disclaimer of the subject matter contained therein.

Please amend claims 1, 6, 8, 11 and 15 as follows:

1. (Amended) A golf ball comprising:

a core;

an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and

an outer cover layer disposed on said inner cover layer, said outer cover layer having a Shore D hardness of [from about 55 to about 59] about 64 or less, a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

6. (Amended) A golf ball comprising:

a core;

an inner cover layer disposed about said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more ionomeric resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and

an outer cover layer disposed on said inner cover layer, said outer

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cover layer having [a Shore D hardness of from about 60 to 68,] a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

8. (Amended) The golf ball of claim 6 wherein said outer cover exhibits a Shore D hardness of [from about 63 to] about 64 or less.

11. (Amended) A golf ball comprising:

a core;

an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of about 60 or more, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of [from] greater than about 15,000 [to about 70,000] psi; and

an outer cover layer disposed about said inner cover layer, said outer cover layer having [a Shore D hardness of from about 55 to about 68,] a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

15. (Amended) The golf ball of claim 11 wherein said outer cover exhibits a Shore D hardness of [from about 63 to] about 64 or less.

IN THE ABSTRACT:

Please amend the title on page 38 to read as follows:

**IMPROVED MULTI-LAYER GOLF BALL [HAVING MULTI-LAYER COVER WITH
UNIQUE INNER COVER CHARACTERISTICS]**

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